

**REMARKS**

Favorable reconsideration of this application is respectfully requested in view of the following remarks.

The subject matter recited in Claims 9 and 16 has been incorporated into independent Claims 1 and 10 respectively, and Claims 9 and 16 have been canceled. In addition, new Claim 17 is presented for consideration. Thus, the claims currently pending in this application are Claims 1-8, 10-15 and 17, with Claims 1 and 10 being the only independent claims.

Independent Claim 1 is directed to an implantable electrode lead having a distal end provided with at least one electrode to be implanted in a predetermined portion of a living body to perform at least one of transmission of an electrical stimulation pulse to a living body and sensing of an electrical signal from the living body, a proximal end provided with connecting means having at least one connecting terminal for connection to an implantable medical instrument, and a lead body provided between the distal end and the proximal end to electrically connect the at least one electrode to the at least one connecting terminal. The lead body comprises a helical parallel coil of a plurality of conductive wires which respectively have different properties and which are insulated from each other. In addition, the plurality of conductive wires electrically connect the at least one electrode to the at least one connection terminal in parallel to form a parallel circuit.

Independent Claim 10 is directed to an implantable medical instrument using an implantable electrode lead having at least one electrode to be implanted in a predetermined portion of a living body and a lead body to electrically connect the at least one electrode to at least one connecting terminal of the instrument. The lead body comprises a helical parallel coil of a plurality of conductive wires which respectively have different properties and which are insulated from each other, with the plurality of conductive wires electrically connecting the at least one electrode to the at least one connecting terminal in parallel to form a parallel circuit. In addition, the implantable medical instrument comprises informing means for determining, based on conductivity between the at least one electrode and the at least one connecting terminal, that at least one of the plurality of conductive wires is damaged and for informing of such damage.

The Official Action sets forth an anticipatory rejection of independent Claim 1 based on the disclosure contained in U.S. Patent No. 5,261,418 to *Ferek-Petric*. That rejection is respectfully traversed for at least the following reasons.

As mentioned above, independent Claim 1 has been amended to recite that the lead body comprises a helical parallel coil of a plurality of conductive wires which respectively have different properties and which are insulated from each other. In addition, Claim 1 has been amended to recite that the plurality of conductive wires electrically connect the at least one electrode to the at least one connecting terminal in parallel to form a parallel circuit.

By providing a helical parallel coil of a plurality of conductive wires respectively having different properties, it is possible to provide the lead body with a relatively small diameter. In addition, it is possible to maintain an electrical connection between the electrode of the distal end and the connecting terminal of the proximal end with relatively little change in contact resistance, even in the event one of the conductive wires is damaged.

*Ferek-Petric* discloses a cardiac lead provided with a tensiometric element for providing signals corresponding to heart contractions. The tip of the lead is provided with an electrode 20 that is electrically connected with the central pin of a connector by way of a lead conductor 21 having a channel 22. Two helically wound lead conductors are isolated by way of an inner insulation 24 and an outer insulation 25. The lead is also provided with a tensiometric tube 27 that is assembled to the lead so as to proceed through the lumen of the outer lead conductor 23 and electrically connected to the outer conductor 23 at the distal end of the conductor 23 and the proximal end of the tensiometric tube 27.

As illustrated in the drawing figures, the inner coil conductor 21 and the tensiometric conductor 27 are located at different relative positions with respect to the diametric direction, thus leading to an increase in the diameter of the lead.

The aforementioned wording added to Claim 1 more clearly differentiates the claimed subject matter over the disclosure in *Ferek-Petric*. *Ferek-Petric* does not disclose, together with the other claimed subject matter, providing a lead body that

comprises a helical parallel coil of a plurality of conductive wires which respectively have different properties and are insulated from each other, with the conductive wires electrically connecting at least one electrode to at least one connecting terminal in parallel so as to form a parallel circuit as recited in amended independent Claim 1. It is thus respectfully submitted that independent Claim 1 is patentably distinguishable over the disclosure contained in *Ferek-Petric*.

The Official Action also sets forth an anticipatory rejection of independent Claims 1 and 10 based on the disclosure contained in U.S. Patent No. 6,285,910 to *Verness et al.* This rejection is also respectfully traversed.

*Verness et al* discloses two conductors 116, 118, one of which is a conventional multifilar coiled conductor 116 and the other of which is a small diameter bundled stranded wire conductor 118. However, these conductors 116, 118 do not comprise a helical parallel coil of conductive wires which respectively have different properties and which are insulated from each other, with the conductive wires electrically connecting at least one electrode to at least one connecting terminal in parallel so as to form a parallel circuit as now set forth in Claims 1 and 10 by virtue of the aforementioned wording added to Claims 1 and 10. It is thus respectfully submitted that independent Claims 1 and 10 cannot be anticipated by the disclosure contained in *Verness et al.*

The only other document relied upon in the Official Action, U.S. Patent No. 5,179,947 to *Meyerson et al*, is merely cited for its disclosure of an accelerometer.

The disclosure in this document does not make up for the deficiencies pointed out above with respect to the disclosures contained in *Ferek-Petric* and *Verness et al.* Accordingly, a hypothetical combination of the disclosures contained in these three documents would not have directed one to do that which is defined in independent Claims 1 and 10 as the invention.

As a final matter, in addition to the wording added to Claims 1 and 10 to more clearly differentiate the claimed subject matter over the disclosures in the documents relied upon in the Official Action, Claims 1 and 10 have been amended in other minor respects to improve the claim wording and readability. For example, Claims 1 and 10 have been amended to refer to at least one electrode rather than an electrode, and to delete the "characterized in that" wording. On this latter point, a similar change has also been made in the dependent claims. Also, Claims 1 and 10 have been amended to refer to the at least one connecting terminal of the connecting means and to refer to conductive wires rather than wires. Once again, this latter change has also been made throughout the dependent claims. Finally, the wording in the latter part of Claim 10 has been changed slightly to improve the readability of the claim and avoid the somewhat awkward wording in the original claim.

Early and favorable action with respect to this application is respectfully requested.

Should any questions arise in connection with this application or should the Examiner believe that a telephone conference with the undersigned would be helpful in resolving any remaining issues pertaining to this application, the undersigned respectfully requests that he be contacted at the number indicated below.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

Date: March 17, 2004

By: Matthew L. Schneider  
Matthew L. Schneider  
Registration No. 32,814

P. O. Box 1404  
Alexandria, Virginia 22313-1404  
(703) 836-6620